

REMARKS

Various amendments to the specification and claims have been made herein. All such amendments were made for the sole purpose of improving grammar and readability of the original filing, and not in response to any objection or rejection from the Office or in response to any citation of prior art.

Claims 1 through 24 are currently pending in the application. The Office has rejected Claims 1 through 24 under 35 U.S.C. § 102, with independent claims 1, 11, 21 and 23 being anticipated by a document entitled "The Virtual Reality Modeling Language Specification, Version 2.0", August 4, 1996 (hereinafter "Bell").

With respect to the first element of Claim 1, which reads:

(a) setting downstream/upstream channels between the server and the terminal as initialization"

The Office cites the following definition from Bell with respect to element (a) of the claim:

VRML document server: an application that locates and transmits VRML files and supporting files to VRML client applications (browsers).

The Office concludes from this definition that any system in which a server and client communicate inherently implies downstream and upstream channels. The Applicants respectfully disagree with this conclusion. First, the definition cited by the Office for VRML document server, implies only one way communication and transmission of data, that being between the server and the client. The cited definition does not mention communications flowing from the clients to the server. Second, traditional communications between clients and servers are typically not carried out using a downstream and upstream channel, but typically use a single communications channel having bidirectional communications thereon. In the case

of a browser application and a server as is used in the traditional worldwide web, these types of client/server configurations do not even use channels. Instead, the client makes a request via a TCP/IP message which is routed through the Internet to the destination (the server). The server then returns the information utilizing the same TCP/IP protocol to the client through the Internet. No formal channels are ever initialized or maintained during this communication. Therefore, in light of the Office's citation of this definition and in view of the traditional client/server model, the Applicants respectfully disagree that the conclusion that all client/server models imply downstream and upstream channels can be made based on this citation.

The next elements of the claim read as follows:

(b) the terminal forming an upstream channel message if a user request of predetermined processing of a predetermined object occurs in a scene transmitted from the server to the terminal through the downstream channel and transmitting the message to the server through the upstream channel;

(c) the server receiving the upstream channel message, interpreting the message, processing the message as the user request of predetermined processing, and transmitting the result to the terminal; and ...

The Office cites as anticipating materials for these two steps of the method a passage from the Bell reference wherein an "anchor node" is defined. An anchor node causes a URL resource to be fetched over the network when the user activates (i.e. "clicks") some geometry contained within the anchor's children nodes. The mechanism for requesting the URL is the same as for any hyperlink used on any Internet website. When the user clicks the link, a request is sent via TCP/IP to the server, and the server returns the requested file via TCP/IP to the client. In Bell, a

VMRL file is returned. No where in this description in Bell is there an upstream or downstream channel defined, or even mentioned.

The Bell reference defines a node as follows:

The fundamental component of a scene graph in VRML. Nodes are abstractions of various real world objects and concepts. Example includes spheres, lights and material descriptions. Nodes contain fields and events. Messages are sent between nodes via routes.

Likewise, events are defined as follows:

Messages sent from one node to another as defined by a route event signal changes to field values, external stimuli and interactions between nodes, etc.

These definitions indicate that an external stimuli (i.e., a user action) creates an event within a node, and that the event is propagated to another node via a route which is defined between nodes. However, none of these actions require further communications with the server through any means and, as such, there is no need for channels, upstream or downstream, between the client and the server.

Typically when a node is clicked by a user (i.e., a user request), the request is routed to other nodes defined within the current VRML file and no request or command is sent by the client to the server. As such, elements (b) and (c) of the present invention are not disclosed by the Bell reference because individual nodes in the Bell model do not make requests to a server. Further, the server referred to in Bell would not have a command interpreter that can interpret those specialized or node-specific commands and take appropriate action. In the Bell model, it would appear that a request is made to a server only when an Anchor node is activated. The definition of Anchor node cited by the Office only results in one action, that being a URL being sent to the server and the server sending the corresponding VRML file

back to the browser. No variety of commands can be defined within this request message and no command interpreter exists on the server to interpret specific user commands within the message. Therefore, the Applicants respectfully submit that the cited passage from the Bell reference does not anticipate elements (b) and (c) against which it is cited and, indeed, no aspect of the Bell reference anticipates those steps wherein a specific command is sent to the server from any node.

Thus, even without the dual channel feature wherein an upstream channel is used to send the commands and the downstream channel is used to receive the results of the commands, the Applicants believe the feature wherein any node can make an upstream request, makes the present invention novel in light of the Bell reference.

The last element of the claim reads as follows:

(d) the terminal substituting the processing result of (c) for the predetermined object in the scene transmitted in step (b), and providing it to the user.

The Office states that refreshing the display when the user receives the result of the user request is inherently implied in a system that displays said request upon receipt. While in general, the Applicants agree with the Office's statement, that statement does not apply to the present invention. The present invention states that the processing results of step (c), are transmitted to the users and the portion that is re-transmitted is *substituted* for what the user previously had been viewing. In Bell, the user makes a request for a new VRML file and a new VRML file containing an entire set of new nodes is sent from the server. As a result, the screen would be redrawn in its entirety with a new set of nodes ("objects" in the present application). There is no "substituting" step, wherein the newly sent data is substituted for a

predetermined object in the scene. In this claim, only the predetermined object would be redrawn and only if it had changed as a result of the command being interpreted by the server. Therefore, Bell does not disclose element (d) of the claim.

The Office has rejected Claims 2, 3, 6-10, 12, 13, 16-20, 22 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Bell.

With respect to Claim 2, steps b2, b3 and b4 are not disclosed by Bell. The Office states that the upstream channel message containing the node identifier (b2) is not disclosed by Bell. However, the larger problem with Bell is that it does not disclose an upstream channel message regardless of whether it contains a node identifier or not, because the "events" in Bell are sent to other nodes within the VRML file and not to the server. Thus, the addition of a node ID would not be obvious in light of Bell, because Bell does not disclose upstream messages from specific nodes. In the Bell reference, when a user request is made to a node, the node generates an event which is propagated to other nodes within the same VRML file via routes. Therefore, step b3, that being "defining a command to be executed in the server" and b4 "forming an upstream channel message containing the node identifier and command" do not happen when the user initiates a user request to a node in the Bell reference. As such, steps b3 and b4 are also not disclosed by Bell.

With respect to claims 6, 7, 16 and 17, the Office states that confirming that a requested file exists is inherently implied in the system in which a client requests a file. The Applicants respectfully point out that files are not what are being requested as recited in claim 1. As stated before, as recited in claim 1, individual nodes defined on the client side are able to generate commands which are sent upstream to the server which interprets them and sends the result back to the client. In the

Bell reference, new VRML files are only requested by the client when the user activates an anchor node. However, as a result of that request, no node command from the node is interpreted by the server. The server merely takes the URL of the requested VRML file and returns that specific file to the client. Therefore, the Office's statement applies to Bell, but not to the present invention.

With respect to Claims 22 and 24, which contain the limitations that the upstream channel message have an identifier and a command corresponding to the user request, the Office states that a command corresponding to the user request is inherently implied in a system in which user requests data and the server transmits the data. However, the Bell reference does not disclose commands sent as a result of user requests. User requests are handled via events, propagated by nodes to other nodes via routes and the only request made to the server is a request for a new VRML file containing an entire set of nodes. There is no disclosure of a command corresponding to a user request of predetermined processing.

The Office states that Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bell in view of U.S. Patent 6,654,761 (Tenev, et al.). The Office states that Bell does not show determining whether or not the defined node is reusable at the scene. The Office states, however, that this feature is well known in the art and would have been an obvious modification to Bell as evidenced by Tenev. Tenev discloses a method for determining which web pages to remove from memory as the user is navigating various web pages using a browser. Web pages not contained in memory will have to be resent from their respective servers when the back or next functions are invoked by the user instead of being recalled from memory. Tenev discloses which web pages to remove from memory

based on the user's navigation thereof based on some algorithm defined in the browser. In the present invention, it is not the removal from memory that requires a node to be re-downloaded, it is a request by the user which results in the generation of a command that modifies the node on the server that requires the re-download of the node. Therefore, these claims can be differentiated from Tenev in this manner and should also be patentable because they depend from patentable parent claims.

With respect to claims 3, 8-10, 13 and 18-20, the Applicants maintain that these claims are dependent upon patentable parent claims, and, as a result should also be patentable for at least the reasons stated above.

CONCLUSION

Therefore, the Applicants respectfully request reconsideration of the claims in light of those amendments and the arguments above and request allowance of the claims at the earliest possible time.


It is believed that this Response requires no fee. However, if a fee is required for any reason, please charge Deposit Account No. 02-4553 the necessary amount.

Should the Examiner have any questions regarding these amendments or arguments, the Applicants request that the Examiner contact the Applicants' attorney, listed below.

Respectfully submitted,

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